LIBRARY JOURNAL

APRIL 1, 1991

A CAHNERS/R.R. BOWKER PUBLICATION

We Can Curb Costly Cataloging

#LNGA ISSEDJC891141# 0173
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Dorothy Gregor, UC–San Diego
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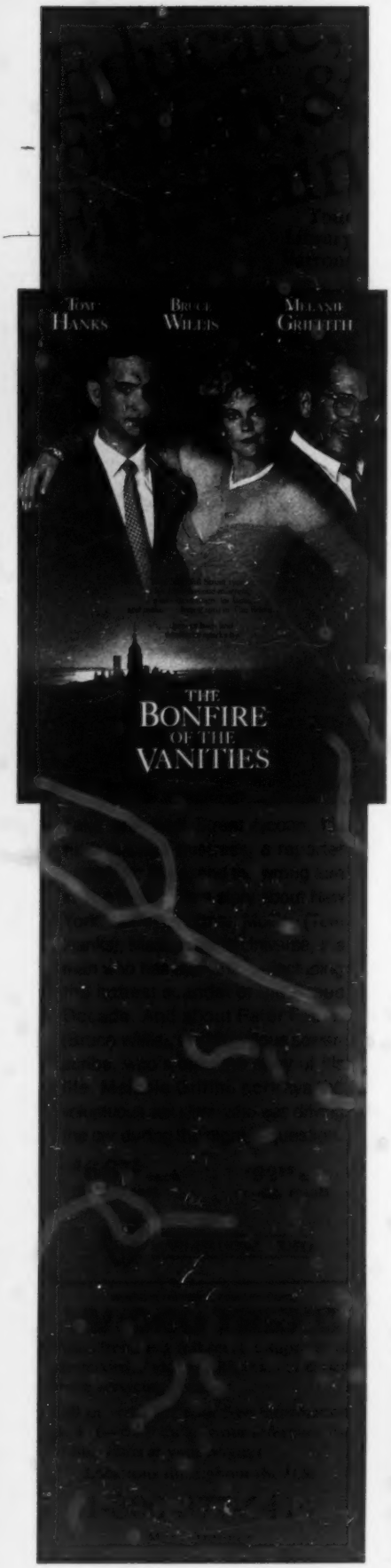
Managing Innovation

ALA Candidates Answer *LJ*

Automation Marketplace: What's Selling



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LIBRARY

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Though there are differing schools of thought, Dorothy Gregor and Carol Mandel remain undivided in their thinking that cataloging needs to be simplified. See "Cataloging Must Change!" on page 42.

PHOTOGRAPHS BY JAMES ARONOVSKY/BILL KELLY

April 1, 1991

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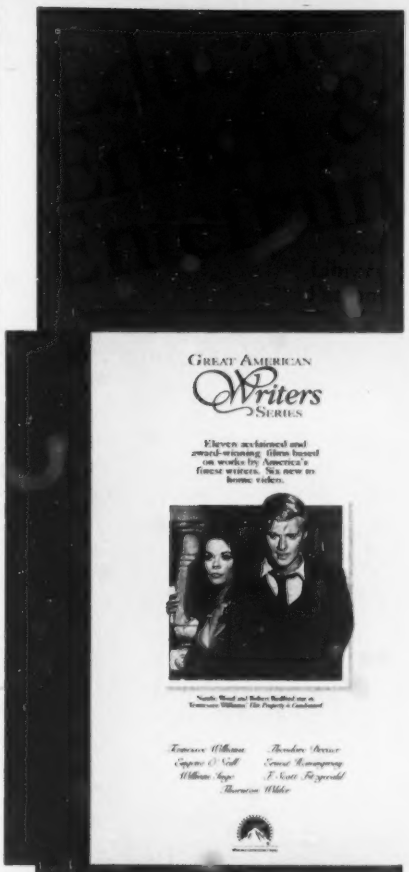

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Broadening our definitions allows smaller systems to be included in this survey and broadens the boundaries of extant library technology

Automated System Marketplace 1991

Redefining System Frontiers

By Frank R. Bridge

CHANGES IN THE automation marketplace during 1990 highlighted many of the trends and niggling little problems encountered in last year's account—problems that many readers were not at all hesitant to point out. Most complaints centered around a general lack of information about smaller systems, especially as these smaller systems are applied in the special library setting. This year, we are happy to report, the article should come much closer to meeting these needs. Although the article still concentrates on the larger integrated online systems, many conditions existing in the marketplace contribute to a downsizing trend.

The newly available types of hardware and software are making automation more accessible to many smaller libraries, either because the costs are more reasonable than they have been previously or because computer systems are already in place, waiting only for the addition of library automation software and a few extra peripherals. The advent of these new technologies has made the definition of "system" more problematic for us as we attempt to devise some standard with which to measure the marketplace. "On Calculating Market Share: A Definition" (p. 60) offers a more detailed explanation, but we have tended to broaden the definition enough to include some of the smaller software-only and micro-based vendors.

Apply this newer definition to the current marketplace and you will discover two distinct indicators: sales as measures by the number of vendor installations and sales in terms of vendor revenues. Using last year's definition of "system," annual growth in 1990 was approximately five percent. This follows the flattening trend seen over the last four years, and is even lower than 1989's nine percent growth rate in the number of systems sold (see "Automation Marketplace 1990: Focusing on Software Sales and Joint Ventures," *LJ*, April 1, 1990, p. 55–66).

However, this is a very deceptive view. Applying the new definition of "system," which includes many micro-based systems, yields a more realistic approach. Many of the systems installed last year fall into the two- to 16-terminal range: vendors sold some 258 systems of this size, accounting for 43 percent of all systems sold. When

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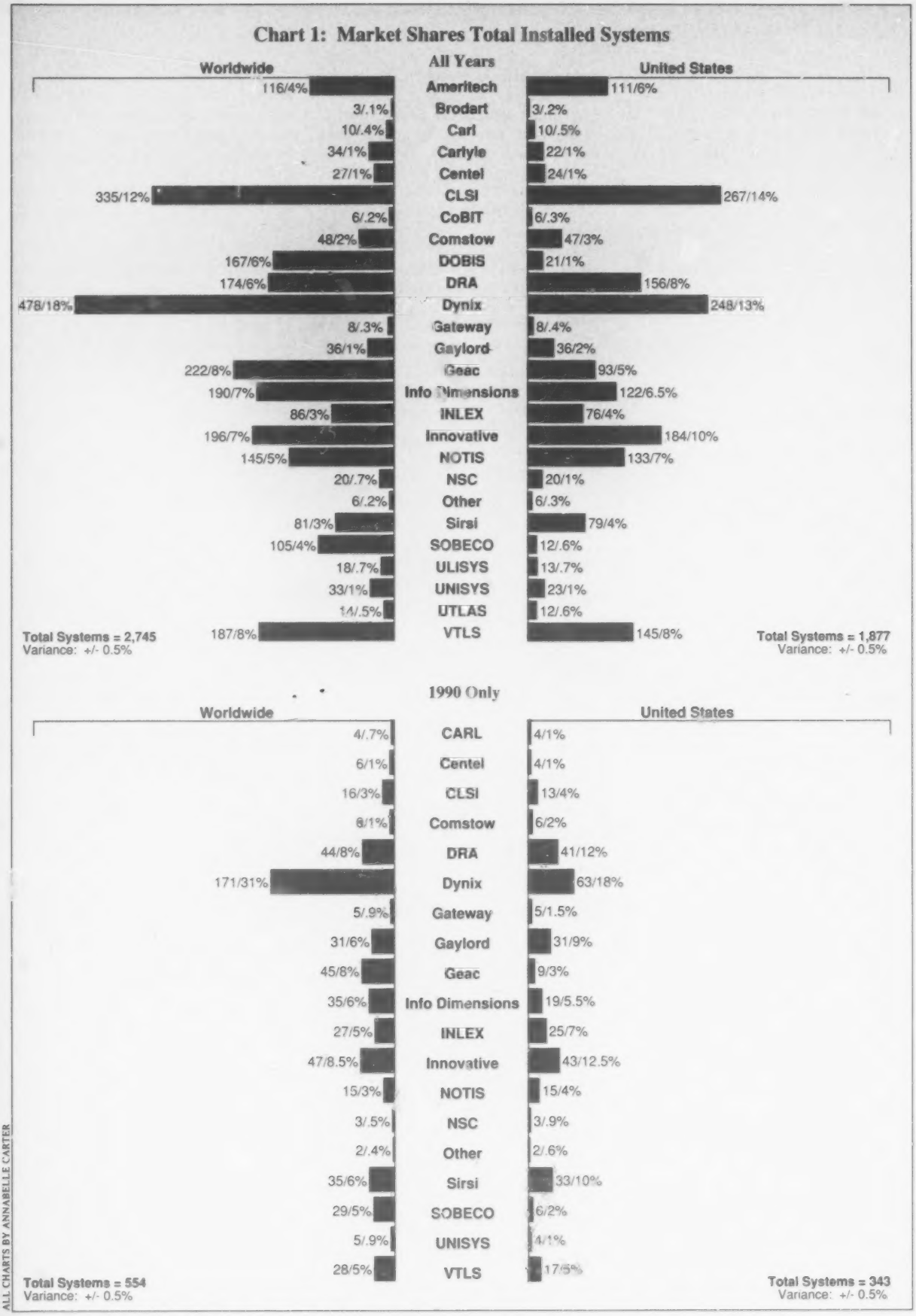


Chart 1: Market Shares Total Installed Systems
All Years
Worldwide
United States
Ameritech 116/4% 111/6%
Brodart 3/.1% 3/.2%
Carl 10/.4% 10/.5%
Carlyle 34/1% 22/1%
Centel 27/1% 24/1%
CLSI 335/12% 267/14%
CoBIT 6/.2% 6/.3%
Comstow 48/2% 47/3%
DOBIS 167/6% 21/1%
DRA 174/6% 156/8%
Dynix 478/18% 248/13%
Gateway 8/.3% 8/.4%
Gaylord 36/1% 36/2%
Geac 222/8% 93/5%
Info Dimensions 190/7% 122/6.5%
INLEX 86/3% 76/4%
Innovative 196/7% 184/10%
NOTIS 145/5% 133/7%
NSC 20/.7% 20/1%
Other 6/.2% 6/.3%
Sirsi 81/3% 79/4%
SOBECO 105/4% 12/.6%
ULISYS 18/.7% 13/.7%
UNISYS 33/1% 23/1%
UTLAS 14/.5% 12/.6%
VTLS 187/8% 145/8%
Total Systems = 2,745
Variance: +/- 0.5%
Total Systems = 1,877
Variance: +/- 0.5%
1990 Only
Worldwide
United States
CARL 4/.7% 4/1%
Centel 6/1% 4/1%
CLSI 16/3% 13/4%
Comstow 6/1% 6/2%
DRA 44/8% 41/12%
Dynix 171/31% 63/18%
Gateway 5/.9% 5/1.5%
Gaylord 31/6% 31/9%
Geac 45/8% 9/3%
Info Dimensions 35/6% 19/5.5%
INLEX 27/5% 25/7%
Innovative 47/8.5% 43/12.5%
NOTIS 15/3% 15/4%
NSC 3/.5% 3/.9%
Other 2/.4% 2/.6%
Sirsi 35/6% 33/10%
SOBECO 29/5% 6/2%
UNISYS 5/.9% 4/1%
VTLS 28/5% 17/5%
Total Systems = 554
Variance: +/- 0.5%
Total Systems = 343
Variance: +/- 0.5%
ALL CHARTS BY ANNABELLE CARTER

one accounts for the overall growth, the marketplace expanded by 595 systems worldwide, from 2150 reported in last year's article to 2,745 this year, or approximately 28 percent.

The impact of these smaller systems on vendors' fiscal performance is a little harder to judge, considering the scant information received. As in previous years, we bravely attempted to gather estimates of the vendor revenues. Just as consistently, only a few vendors have permitted us to publish this information, although most of them provided it.

The conclusions? First, the library automation marketplace is a $178 million industry, based on library-system-related revenues only (as opposed to last year's marketplace article's *gross* revenues—a less definitive measure). Second, although the lion-size slice in the pie chart (Chart 5) still refers to that enigmatic "other" category, that slice is becoming a little smaller. (Fortunately, a few of the largest vendors in the industry are also the proudest of their growing revenues.) Still, with just five vendors willing to publish financial information, the number of installations continues to be our primary benchmark, even though vendors selling just a few very large systems are not well served by this indicator.

Systems with fuzzy edges

As the technology changes, the definition of "system" has become increasingly difficult to pin down, so it might be interesting to look at the

Table 1: Hardware Availability

Manufacturer	Model	Vendor
AIS	IBM Compatible 80386	SC350/ACQ350 (Ameritech)
Altos	2000	CLSI
ARIX	all	Innovative, Sirsi
AT&T	3B2 Series Model 850/875	Centel/DataLib GEAC Adv.
BULL	DPX 210, 510 XPS-100, DPX/2	Sobeco/multiLIS GEAC Adv.
Control Data	EPIX	Information Dimensions
Convergent	all UNIX	Innovative Interfaces
Data General	AViiON Series MV/ Series	GEAC Adv Centel/DataLib, CoBIT LS/2000 (Ameritech)
DEC	S/ Series Vax, MicroVAX, under VMS	LS/2000 (Ameritech) Centel/DataLib, Comstow, Data Trek, DRA, Gaylord Georgetown, Info Dimensions, Sobeco/multiLIS, ULISYS
	VAXstation/VAXsystem, under ULTRIX	Carlyle, Comstow, Dynix GEAC Adv, Info Dimensions, Innovative, Sirsi, Sobeco/multiLIS
	PDP 11/XX Series	CLSI, Georgetown, ULISYS
	UltrixRISC System	LS/2000 (Ameritech) Carylyle, Dynix, Innovative, Sobeco/multiLIS
Encore	all	GEAC Adv
Geac	Series 6000, 8000, 9000	GEAC GLIS
Hewlett-Packard	3000 Series 6000 Series 9000 (UNIX) 9000 Series 800	Inlex, VTLS Info Dimensions Dynix, Sirsi GEAC Adv
Honeywell	DPS/6	Dynix
HP/Apollo	all	Comstow
IBM	30XX	Brodart, DOBIS, GEAC Adv, Info Dimensions, NOTIS, VTLS
	43XX	DOBIS, Info Dimensions, NOTIS
	937X	DOBIS, Info Dimensions, NOTIS, VTLS
	AS/400 ES/9000 Series	CDMS, Gateway NSC NOTIS
IBM	R6000 Series RT series S/38	Dynix, GEAC Adv, Sirsi Dynix NSC
ICL	Power 6 Series	Centel/DataLib
IN2	Model 4000	GEAC Adv
Innovative	INNOVACQ	Innovative Interfaces
Intel	386/486 based systems DPX	Sirsi, VTLS Carlyle
McDonnell Douglas	any w/PICK oper. system Sequel, Spirit	GEAC Adv Dynix
MIPS		Dynix, Innovative, Sobeco/multiLIS
Motorola	M8000	GEAC Adv
NCR	Tower 300, 500, 700	Sobeco/multiLIS, Sirsi
Olivetti	LSX 3020/30/40	GEAC Adv
Prime	any w/PICK oper. system 50 Series, EXL	GEAC Adv Dynix, GEAC Adv
Pyramid	all	GEAC Adv
Sanyo ICON	2XXX–4XXX	GEAC Adv
Sequent	S3, 8, 21, 27, 81 all	CLSI Dynix, GEAC Adv, Sirsi
Sequoia	all Cyclone Series 200	Dynix Utlas GEAC Adv
Sun	all SPARCstation series SunServers	Comstow Carlyle Info Dimensions
Tandem	TXP, TNSII CLX, VLX EXT	Alice-B (Ameritech) CARL Utlas
Ultimate	14XX, 3XXX–7XXX	Dynix
Unisys	1100,2200,PW2, U-SERIES 5000 Series	Innovative Interfaces Unisys Dynix, GEAC Adv
Wang	VS Series	NSC
Wyse	2108,2012,2116i XT,286,386	CLSI LS/2000 (Ameritech)

once-simple problem of counting terminals. With the continuing growth of campus and governmental local area networks (LANs), local library automated systems can no longer be considered self-contained entities serving a clearly defined audience.

Many of the currently installed library automated systems include LAN ports, making the library system just another component in an expanding distributed computer infrastructure. Terminal counts become quite indistinct once the library opens its system to a LAN. Therefore, in order to help the vendors count terminals consistently, this year's survey forms contained a new, full-page instructional insert. For example, a LAN-based library staff microcomputer would count as a library system terminal only if used for library system functions more than 95 percent of the time. Nonlibrary LAN-based terminals had to be counted by statistical methods that would bore the reader.

Some vendors had an easy time of it: their software restricts the maximum number of simultaneous users regardless of access method, but many other packages cannot do so. To make matters even more complicated, at least one vendor has begun to market a system that is specifically designed to drop into an existing LAN, thereby abandoning altogether the concept of a centralized library automated system computer and terminals.

Another indistinct system boundary appears as its capabilities expand to furnish windowing into other information services. While it is relatively easy to provide access to online database searches through the local system, and many libraries have done so, others have chosen to avoid the telephone and database access charges by either mounting these databases directly on their local system hard disks or by providing access to similarly mounted CD-ROM drives.

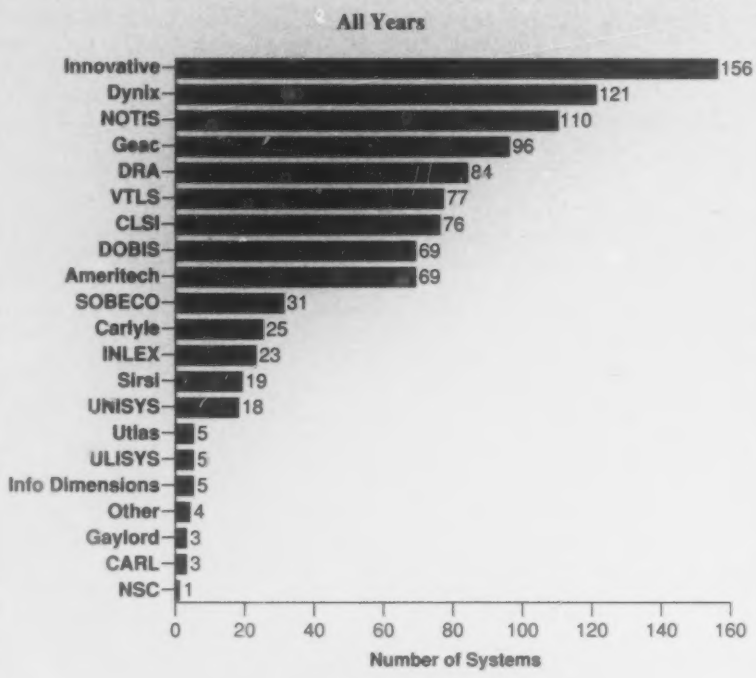
Several library system vendors

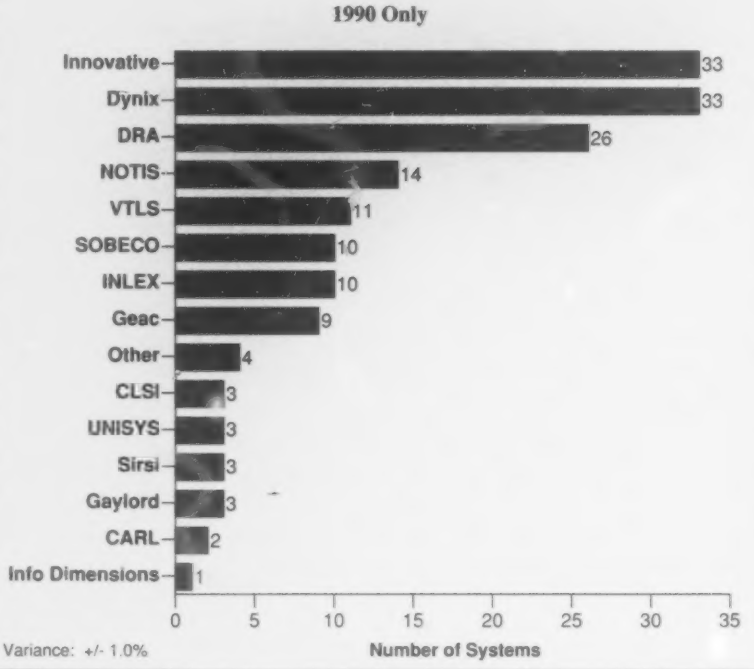
Table 2: Operating Systems

System	Release	Vendor	System	Release	Vendor
AIX	2.1,2.2	Geac Advanced, Dynix, Sirsi	PICK	1.6	GEAC Adv
AOS/VS	7.65+	Centel/DataLib	PL/1		DOBIS
	7.57+	CoBIT	PI/1 [Data General]	2.52	CoBIT
AOS/VS II	1.21+	CoBIT	PRIMOS [oper. PICK]		Dynix
CDC NOS/VE	1.2.1	Information Dimensions	Pyramid OSx	4.0	GEAC Adv
CICS		DOBIS	Sun OS		Info Dimensions
	1.7	Brodart	System V RTU		GEAC Adv
CICS/VS	1.6+	NOTIS	TOPIX	6.1	GEAC Adv
CLSI Proprietary		CLSI	ULTRIX		Info Dimensions, Comstow
CMS-1100	5R1A	Unisys		3.1	GEAC Adv, Innovative Interfaces
COMLOG	1.52	CoBIT	UMIPS RISC OS (UNIX)	4.51	Sobeco/multiLIS
DG/UX	R4.1/4.2	GEAC Adv	Unisys System V	2.0, 3.0	GEAC Adv
DMS	8R3G	Unisys	UNIX		Unisys
EXEC	41R3	Unisys		AIX	Comstow, Dynix, Sirsi
Geos.8	3.4	GEAC GLIS		BSD 4.3, HP-UX	Comstow
Geos.9	2.7.3	GEAC GLIS		System V.3	Cntl./DataLib,Innovative,Ringgold
GUARDIAN	C series	Utlas			Sirsi, Sobeco/multiLIS
	90 XF	CARL		System V.3.1, 3.2	GEAC Adv
	B40, C20	Alice-B (Ameritech)		System V.3.2	Carlyle
Hewlett-Packard MPE V/E		Inlex		System V.5.n	Comstow
Hewlett-Packard MPE/XL		Inlex, VTLS		System V.5.2	Sobeco/multiLIS
Hewlett-Packard OS		Info Dimensions	UNIX [oper. Altos]	Sys. V.5.3 DT3	CLSI (Rel. 28)
IN2	Rel.3.02	GEAC Adv	UNIX [oper. Bull]	V.2.0	GEAC Adv
INFOS II	Rev.5.01+	CoBIT	UNIX [oper. PickTel, PickBlue]		Dynix
Intel RMXII	3.0	Carlyle	UNIX [oper. Sequent]	3.017	CLSI (Rel. 28)
M/11+-Intersystems	3.X	Georgetown University	UNIX [oper. VMark, UniVerse]		Dynix
MIIS	5.3	LS/2000 (Ameritech)	VM-IBM/CMS		Information Dimensions
Motorola System V	68/88	GEAC Adv	VM-IBM/SQL	5.0+	VTLS
MVS-IBM/ESA		DOBIS, NOTIS, Info Dimensions	VMS		ULISYS, Info Dimensions
MVS-IMB/SP		DOBIS		4.0	Information Dimensions
MVS-IBM/TSO	3.7	Info Dimensions		4.4–5.2	Comstow
MVS-IBM/XA		DOBIS,NOTIS, Info Dimensions		4.5+	Centel/DabaLib
MVX-Intersystems	3.X	Georgetown University		5.0+	DataTrek
NCR [Unix V]		Sobeco/multiLIS		5.4	Sobeco/multiLIS
OS-IBM/VS1		NOTIS		5.5	Comstow
OS/400		ProData		latest	DRA, Gaylord
	3.0	CMDS, Gateway, NSC	VMS [oper. PICK]		Dynix
OS1100	3R2	Unisys	VSE	4.X-5.X	DOBIS
P/OS		CLSI			Georgetown University
PC DR MS-DOS	3.3+	SC350/ACQ350 (Ameritech)	VSE/SP		DOBIS, NOTIS
PICK		Dynix	Wang VS		NSC
			Xenix		Ringgold

(Comstow, INLEX, VTLS) are working with direct interfaces between their OPACs and these silvery budget gobblers. Other vendors, like DRA, Geac, and Carlyle, have decided that visual files (artwork, photographs, etc.) are an interesting adjunct to the bibliographic database, and have created interfaces to separate small but powerful computers that contain and manipulate these rather large files. Other vendors like Geac and DRA provide community information and referral files for their systems. For additional information regarding individual vendor forays into the edge-blurring frontier, see the individual vendor profiles (p. 57-62).

Chart 2: Worldwide Installations in Academic Libraries





U.S. vs. foreign markets

As in last year's article, many of the vendors have continued to push into foreign markets as the domestic mid-sized library automation market becomes continually more crowded. Some of the traditional vendors are already well known for this expansionist philosophy outside U.S. borders—these include Dynix (which sold 108 systems abroad in 1990), INLEX, CLSI, and VTLS as well as those seeking inroads here, like the Canadian companies Sobeco/multiLIS and Geac. But the roster grows longer with vendors like Sirsi, which opened an office in England, and Innovative, which sold a system in Hong Kong. So the question remains: What happened worldwide and what happened in the United States?

Chart 1 presents the worldwide and U.S. market shares for total systems installed for all years. The chart is based on the newly expanded microcomputer system definition, which tends to enhance the Dynix and VTLS market shares. Considering the large base of installations examined and the increase in vendors from 17 in 1989 to 29 in 1990, a change of even one percent means a huge difference in the number of installations.

No matter how you count it, Dynix has finally reached a long-sought corporate goal of becoming the largest installed vendor with 478 systems worldwide and an 18 percent market share, eclipsing CLSI's now second place 335 and 12 percent share. Most of the other leaders pretty well take their usual places from the last year's all-year count. DRA at six percent and Innovative at seven percent remain unchanged. Both Geac and NOTIS are down one percent from last year at eight percent and five percent, respectively. DOBIS, the worldwide IBM-based software package, is down two percent, resting at six percent.

A newcomer to the chart for this year is Information Dimensions, a software-only vendor marketing to special libraries, with a worldwide market share of seven percent. This vendor fares as well when looking at U.S. sites, where its market share also holds at 6.5 percent. Geac per-

forms similarly. Others whose overall user bases are heavily foreign do not fare as well. Like last year, Canadian firm Sobeco/multiLIS shows a large drop from four percent worldwide to less than one percent in the United States. Perhaps most surprising, while DOBIS posts a still very respectable worldwide base of six percent, it almost drops off the chart with only one percent in the United States.

The 1989 and the 1990 worldwide vendor totals for *all years* remain relatively predictable. This is not true for the totals for 1990 alone. There are some new players that have recently taken the market by storm, and a few of the older ones have demonstrated some serious decline. Chart 1 also presents the worldwide and U.S. market shares for systems installed during 1990 only.

In looking at worldwide 1990 installations, Dynix again shows a clear lead by capturing a 31 percent market share, shattering its 26 percent 1989 performance, and the 21 percent pace set by the company in 1988. The worldview continues to be strongly focused on Dynix, especially in the Australia/New Zealand market, where Dynix exceeded its 1990 U.S. performance by 69 to 63.

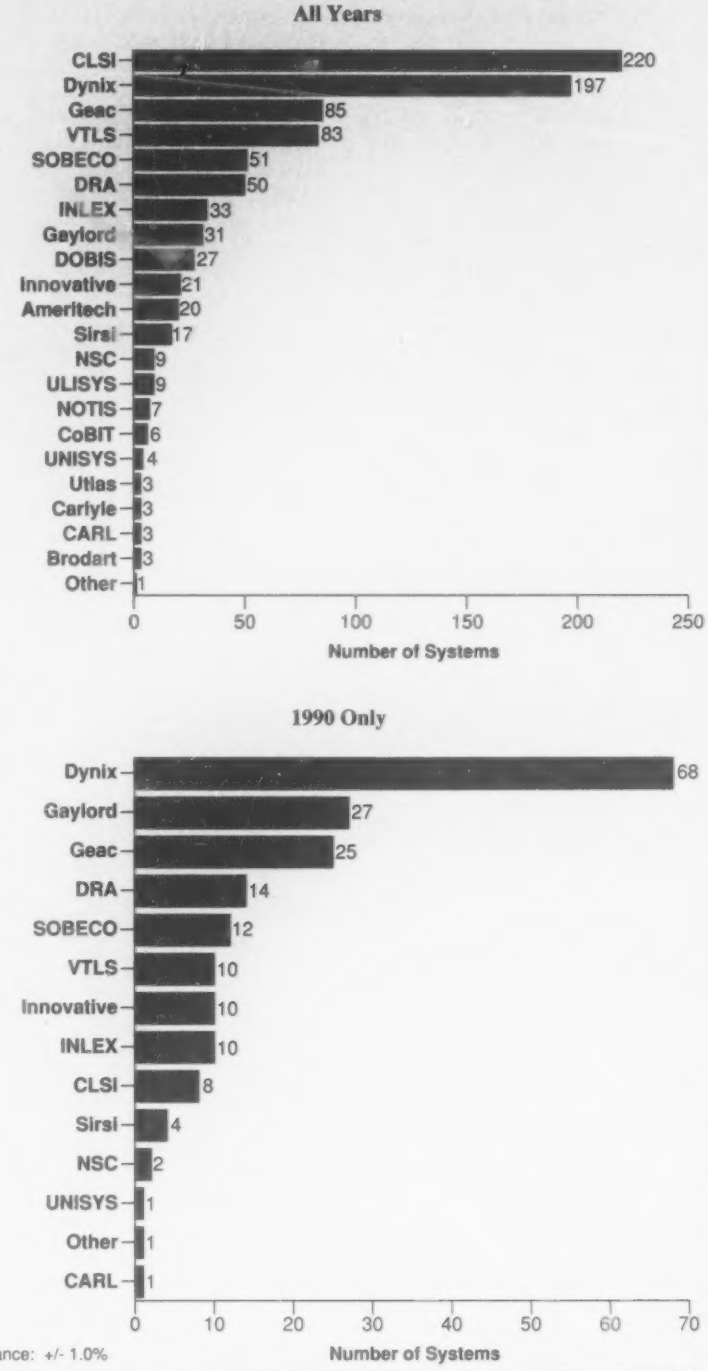
When focusing on U.S. 1990 marketplace activity, Dynix leads the U.S. market with a very respectable 18 percent market share, up from 17 percent in 1989. Second and third place go to Innovative with 13 percent and DRA with 12 percent. Last year Innovative and Dynix were slugging it out for the numeric lead. This year Dynix took it, with Innovative and DRA in a virtual dead heat for second.

Nevertheless, there are several other vendors the marketplace should be watching. Sirsi, featured as a newcomer in last year's article, continues as a strong presence with 33 systems in 1990 and a ten percent U.S. share. INLEX, also a steady performer, managed seven percent. The real surprise was Gaylord, which in its first full year of operations took rookie-of-the-year honors by selling 31 of its new Galaxy systems and gaining a nine percent share. Another vendor to watch is CLSI. Now under new management, it may be a mistake to forecast the future of this library automation giant based on declining market shares or the number of new system sales for 1990. The company has considerable resources to bring to bear on its current business position.

Software-only sales

A trend that has grown considerably since last year is the "software-only" system acquisition. (For a detailed description of this sales method, please see last year's article.) Larger academic libraries used to be the most likely candidates for purchasing library automation software and mounting it upon an existing

Chart 3: Worldwide Installations in Public Libraries



minicomputer or mainframe. This is no longer true. Additionally, some of the vendors that have been most closely associated with the turnkey selling approach have decided to follow this ever-increasing tide. Sirsi reports that, although over 50 percent of its sales went to school libraries in 1990, a startling 69 percent of its sales were software-only. DRA, although down from its 1989 total of 80 percent, still reported a 66 percent rate in 1990.

As reported last year, many of the vendors have shown some skittishness regarding system performance and reliability. This also is beginning to change somewhat. As system performance becomes more predictable and as librarians become more adept at purchasing and operating their computer systems without the hand-holding that turnkey arrangements provide, some vendors are beginning to return some system performance guarantees, including response time. Usually these assurances require the library to allocate very specific computing resources, including disk space, main memory, terminal counts, computing power.

Academic libraries

During 1989, we reported that the marketplace saw a large jump in the total number of systems installed in academic libraries in comparison to the number of installations in public libraries, which had slowed considerably. Public librarians, please take heart! This trend completely reversed itself in 1990. Chart 2 illustrates the worldwide market shares for academic libraries for all years and 1990. The 1989 worldwide installation count was 152 in academic libraries and 117 in public libraries. In 1990 the counts were 165 academic and 193 public, largely on the heels of the availability of the smaller library system. If 1990 was not your year to automate, perhaps 1991 will be.

It was no surprise that Innovative again topped the academic library chart for all years, nor was its 1990 performance, picking up right where it left off in 1989. But Dynix was a big surprise in 1990, displacing NOTIS as the all-time second place holder, and pulling even with Innovative's 33 systems for 1990. DRA also had an excellent year in the academic marketplace during 1990, its 26-system effort buoyed not only due to the company's willingness to provide software-only sales, but also its ag-

Table 3: System Interfaces

Vendor	OCLC	RLIN	WLN	Utlas	Biblio-File	Auto-graphics	Marcive	Baker & Taylor	Laser-Quest	Brodart	Other Interface
Brodart	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
CARL	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Carlyle	✓	✓		✓	✓						
Centel/DataLib	✓	✓									
CLSI	✓	✓	✓	✓	✓	✓	✓(tape)	✓(tape)	✓	✓	LSSI; PICA (tape)
CMDS	✓				✓						
CoBIT	✓			✓			✓		✓		
Comstow	✓				✓		✓				Any LC Cataloging
Data Research	✓	✓	✓	✓	✓	✓	✓	✓		✓	DRANET
Data Trek	✓	✓	✓		✓		✓	✓	✓	✓	MITINET
DOBIS	✓	✓	✓		✓						
Dynix	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	LaserCat; SuperCat; Multinet
Gateway	✓		✓		✓		✓		✓		RetroLink, Winnebago, SuperCat
Gaylord	✓						✓				SuperCat, Yankee Bks.
Geac Adv. GLIS	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Georgetown	✓										
Info Dimensions	✓	✓	✓	✓	✓		✓	✓		✓	
Inlex	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	LaserCat, LC Authorities
Innovative	✓	✓	✓	✓	✓	✓	✓	✓	✓		
LS/2000 (Ameritech)	✓			✓			✓			✓	
NOTIS	✓	✓		✓	✓	✓	✓	✓	✓	✓	SuperCat, CD-MARC
NSC	✓	✓			✓		✓	✓		✓	
Ringgold	✓										
Sirsi	✓		✓	✓		✓	✓	✓	✓	✓	SuperCat, Books in Print
Sobeco/multiLIS	✓		✓	✓	✓	✓	✓	✓	✓	✓	
ULISYS	✓	✓	✓	✓	✓	✓		✓		✓	Natl. Lib. Canada
Unisys	✓	✓	✓	✓	✓	✓	✓	✓		✓	
Utlas	✓	✓	✓	✓	✓	✓	✓	✓		✓	
VTLS	✓	✓	✓	✓	✓	✓	✓	✓	✓		SuperCat

Tape = data transfer via magnetic tape load only; not an interactive, online interface

gressiveness in moving to the smaller-system end of the scale.

It is more difficult to pick a "loser" category this year, unless it would be DOBIS. The company had no U.S. sales this year, and one of its current sites is planning to migrate to another vendor during 1991. The transfer of marketing headquarters from IBM/U.S. to IBM in Ireland provides another indicator of the company's stance in the U.S. market. One of the major strengths of the DOBIS systems has always been its multilingual capabilities, and this historically has made it a strong contender in Europe. The 1991 marketplace will tell the tale of the worldwide impact of this shift in DOBIS's marketing direction.

Public libraries

A few surprises occurred in the public library marketplace. During 1990, CLSI continued its dominant position as leader in worldwide installations with a new total installation base of 220 public libraries, followed by an ever-closing Dynix with 197 public institutions. The 1990 year was an astounding one for Dynix, which remained the clear favorite vendor of public libraries with 68 worldwide installations in 1990, more than double its total in 1989. The second-place finisher was Gaylord, a new face in this marketplace. Although its 27 systems were numerically far behind, this is an outstanding effort by any reasonable measure; it would have been a close second behind Dynix just last year. Another strong finisher in 1990 was Geac with 25 systems, on the strength of its Geac Advance product line.

Very small and very large systems

As shown in Chart 4, the major vendors of small systems, those having between two and 16 terminals, saw a few changes in 1990. Dynix extended its lead considerably, with Gaylord, Geac, and Sirsi showing new strength in this market segment. Other traditional names maintained their presence here also, including Sobeco, Innovative, and CLSI.

As shown in the medium-sized range, those systems having between 17 and 64 terminals, the worldwide total still belongs to CLSI, which has always been strong in this range. Other vendors that are showing signs of rapidly overtaking the classical vendor include Dynix, Innovative, DRA, and Geac.

When looking at the behavior patterns of the large systems, those having between 65 and 175 terminals connected, CLSI still maintains an overall lead. Innovative continued to have a reputation of being a "smaller library vendor" and had an excellent year in this range also. Like Dynix last year, Innovative can begin to cast aside that "small vendor" stereotype.

Some very large systems, those with more than 176 terminals installed, were installed in 1990. The historic leaders of the very large system have been CLSI, Geac, Utlas, and NOTIS (NOTIS doesn't appear in the chart since it did not complete the "terminal categories" portion of the survey). During 1990, Dynix led this segment as well with five systems. CARL installed four of these behemoths, and, stair-stepping down, DRA had three, Geac had two, and VTLS and Sobeco each had one.

Table 4: Size of Installations

Vendor	Smallest Library Installed		Largest Library Installed	
	Terminals	Titles	Terminals	Titles
Brodart	1	30,000	16	1,000,000
CARL	88	200,000	1000+	5,100,000
Carlyle	1	36,000	150	2,500,000
CLSI	2	20,000	347	907,500
CMDS	6	50,000	15	110,000
CoBIT	17	72,281	334	453,842
Comstow	2	3,000	32	400,000
Data Research Assocs.	5	20,000	600+	1,400,000
DataTrek	1	2,000	10	110,000
DOBIS	3	50,000	1,000+	2,000,000+
Dynix	2	6,000	512	1,200,000
Gateway	8	19,000	74	75,000
Gaylord	2	26,000	44	125,000
GEAC	3	30,000	254	2,100,000
GEAC Advanced	2	55,000	165	1,200,000
Information Dimensions	2	5,000	350	450,000
INLEX	12	25,000	200	345,000
Innovative Interfaces	2	5,000	230	1,500,000
NOTIS	15	18,800	1,200+	6,200,000
NSC	8	5,000	64	500,000
Sirsi	1	2,000	70	927,000
Sobeco/multiLIS	4	10,000	250	2,500,000
ULISYS	8	52,379	238	587,576
Unisys	10	7,800	3900+	1,800,000
Utlas	18	80,000	225	3,000,000
VTLS	2	6,500	200	5,000,000

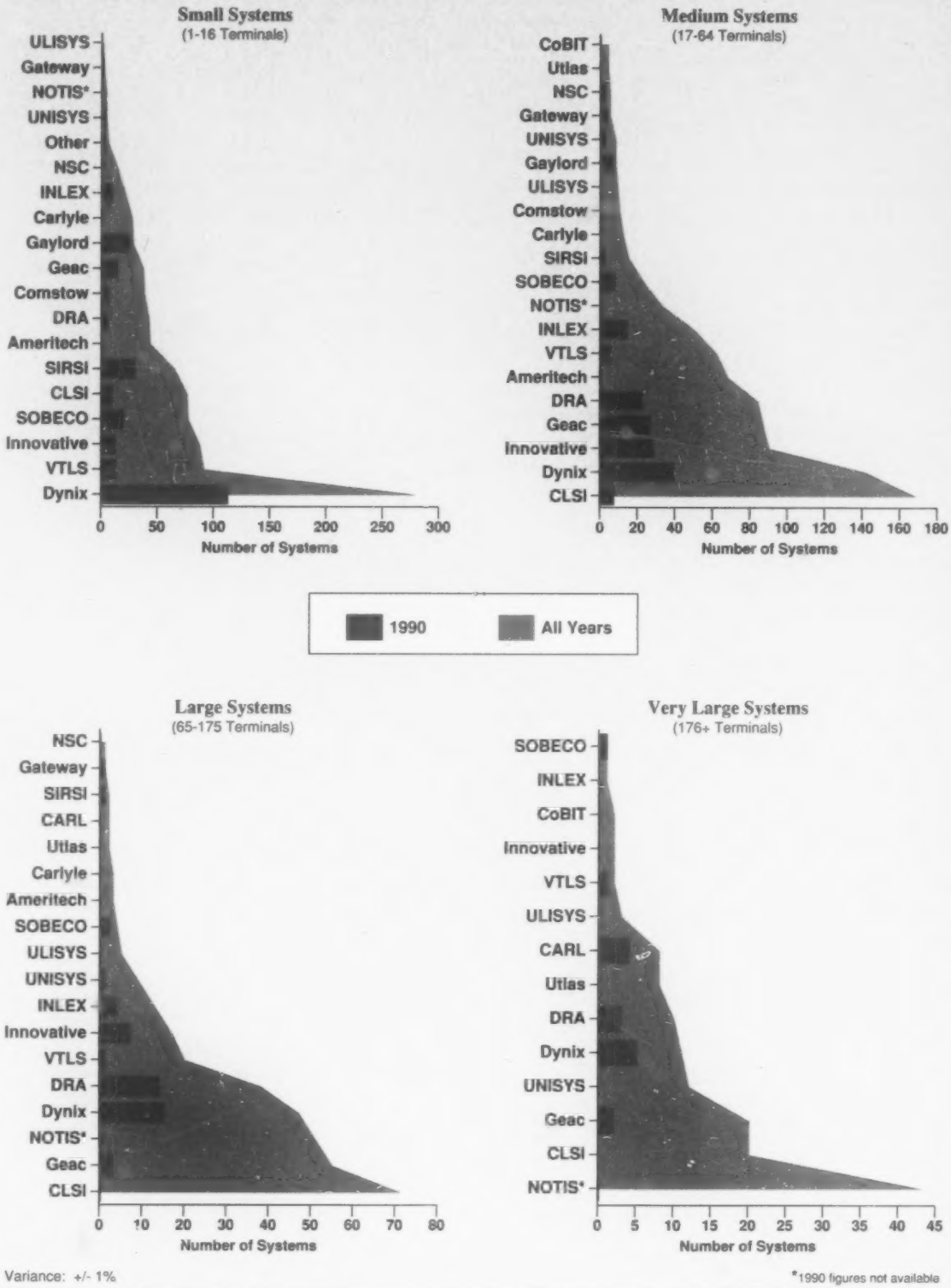
Vendor profiles

Based on the dimension changes occurring in the marketplace, let's examine the individual track records for the vendors during 1990.

Ameritech Information Systems

Ameritech is a newcomer on the library automation scene. The company, a wholly owned subsidiary of the regional Bell operating company, entered the library marketplace in 1990 with a three-fold mission: to market Bell networking products; to promote Bell telecommunications technology; and to offer a complete range of integrated services to its clientele. To further these goals, the company completed acquisition of OCLC's Local Systems Division in mid-1990 and continues to market the LS/2 and LS/2000 systems to a somewhat skeptical audience. Other recent acquisitions include Tacoma Public Library's Alice-B system, a CD-ROM/minicomputer-based hybrid, which Ameritech is positioning for high-transaction libraries in 1991. Although Ameritech's statistical performance in this article does not look that impressive, remember that this article is aimed at the integrated system marketplace. Therefore,

Chart 4: Vendor Installations Worldwide



Variance: +/- 1%

*1990 figures not available

the survey does not accurately reflect fully one-half of Ameritech's product line. The popular ACQ350/SC350 micro-based systems accounted for all of the company's sales in 1990. Ameritech states that it is committed to the library marketplace. With the power of one of the regional Bell operating companies behind it, it may very well be here to stay.

Brodart Automation

Brodart is already familiar to librarians as a supply house and book jobber; now the company aims to become familiar as an automation vendor with the Interactive Access System (IAS)—theoretically, an integrated online library system for everyone. Instead of installing and operating a computer in the local library, access to the centralized system is accomplished via time share arrangement. Software licensing is also available for those libraries wanting to follow the current trend of operating decentralized computers (IBM mainframes only, please). Currently stressing cataloging and database maintenance subsystems, the system should expand into more fully developed circulation and OPAC functions in 1991. So far takers are few, but 1991 should prove interesting for this system alternative.

CARL Systems, Inc.

Once again, CARL's performance is not well portrayed by our survey instrument. by our count, CARL only has a grand total of ten installations, ever. However, these ten installations serve over 200 libraries and support over 3400 dedicated terminals. Their figures for largest and smallest installations, presented in Table 5, are just as telling. By focusing on networking rather than individual installation sites, CARL improved its financial position and added employees for the second year running. The four installations CARL reported for 1990 are also impressive: Northeastern University Libraries in Boston, the Sno-Isle Regional Library in Marysville, Wash., the University of Hawaii, and the University of Maryland system. This last site, serving 13 libraries, was installed with a five-year terminal projection of 1500 users. CARL continues to be a very big "little guy" in the world of large-system vendors.

Carlyle Systems, Inc.

Carlyle spent all of 1990 in a rebuilding phase. The company has completed the translation of its software modules into UNIX and has entirely revamped its problematical circulation system from previous years. Carlyle has also announced the development of a stand-alone multimedia/image management system, which it hopes to integrate with its online system in 1991. Beta testing is scheduled in 1991 for new acquisitions and serials modules.

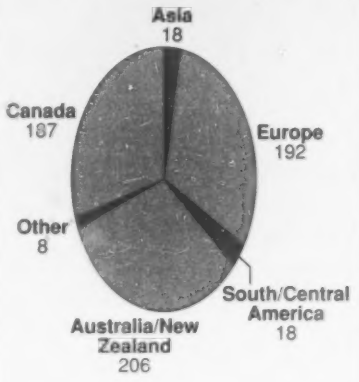
Centel/DataLib

DataLib appears in this survey for the first time this year. This software-only vendor began in the late Seventies by providing software to support the acquisitions functions of several federal libraries. Since that time, the product has expanded into a fully integrated online system that operates on existing host computers. The company's clientele now consists mainly of special libraries in the corporate setting. Accomplishments in 1990 include the development of a full-MARC interface for the import, storage, and export of records. DataLib plans to release Version 9.7 in the spring of 1991.

CLSI

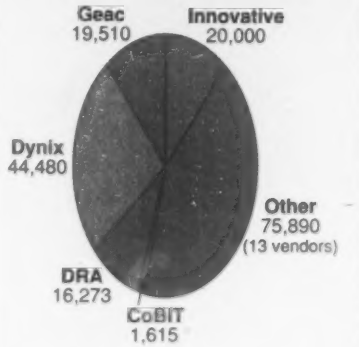
CLSI continues to appeal to the public library sector of the marketplace. The company—and its new president, Bob Walton—continues to work on customer support, an area requiring considerable attention. On the technical front, CLSI announced the completion of the LIBS 100plus System, a second-generation software package that complements CLSI's move from proprietary operating systems to the more standard UNIX platform. Ethernet networking capabilities via the TCP/IP protocol have also been introduced. Other software enhancements include an enhanced report writer and a pull-down-window user interface. For 1991, joint ventures seem to be the company's focus; CLSI rolled out a plan at the ALA Midwinter Meeting for cooperative installations using CLSI's circulation control (LIBS 100plus) and OPAC with the popular INNOVACQ serials control and acquisitions modules.

Chart 6: Total Foreign Installations by Geographic Region



Variance: +/- 1%

Chart 5: Estimated Library Systems Revenues of Automation Vendors 1990
(In Thousands of Dollars)



Total Revenues: $177,768
Variance: +/- 5.0%

CMDS

CMDS's response to this year's survey was problematic, as little or no specific user identities were provided. This led to its formal designation as "other" in many of our charts. This software-only vendor appears to concentrate on the academic sector of the market; its library automation system is part of a larger package designed to support the administrative infrastructure of smaller colleges, universities, and schools. Its products are mainly tied to the IBM AS/400 platform, with a total revision of circulation, OPAC, and cataloging modules completed in 1990. The company plans to finish the development of a graphic user interface for its TEAMS2000 product in 1991, including windows, action bars, pull-down menus.

CoBIT

CoBIT responded to this survey for the first time in 1990. Formed in 1989 after completing the purchase of The Library Machine (TLM) from OHIONET, the company focuses mainly on public libraries and offers a cooperative approach to software licensing. CoBIT users become owners of this not-for-profit corporation, and the company claims that its members thereby have a strong commitment to its vitality. Based on the Data General MV/Series minicomputers, one of the more interesting membership benefits is the inclusion of a complete word processing package as part of the library automation software. Accomplishments in 1990 include a stronger MARC-based cataloging interface and an upgrade in TLM's operating system (AOS/VS II).

Comstow Info Svcs./BiblioTech

Comstow, focusing mainly on corporate and government libraries, had a successful year in 1990. This software-only vendor has previously been dependent upon the VAX/VMS environment, but its products are being ported to UNIX platforms for 1991. The UNIX-based BiblioTix software has been released for Beta testing at HP/Apollo Computers. CD-ROM interfaces with the VAX software have also been a focus of development. The company's hallmark appears to be the integration of special library databases with other company/institutional applications.

Data Research Associates (DRA)

DRA again showed tremendous growth this year, especially in the academic market: its overall user base increased by one-third. Known for its adherence to

computer and library automation standards, this off-the-shelf DEC/VMS system vendor continued its campaign for openness in vendor financial information. Its efforts were only marginally successful, as only about a half-dozen vendors agreed to bare their financial souls to the library community. In the past year, the company's products have been upgraded, and contracts have been signed to provide online interfaces with UMI, IAC, and Wilson to allow real-time access by users of DRA systems. Another accomplishment for 1990 included networked authority verification. Traditionally considered a vendor of choice for larger libraries, 1990 found DRA beginning to show real visibility in its marketing to some of the smaller libraries (20–30 terminals). Major goals for 1991 include increased customer support and further expansion into the international market.

DOBIS

The responsibility of marketing and support of the DOBIS/LIBIS software has been transferred from IBM U.S. to IBM EMEA, a subsidiary of Big Blue that focuses on Europe, the Middle East, and Asia. Not surprisingly, DOBIS reported no U.S. sales in 1990. Goals for 1991 remain unclear, the survey forms having been delayed in transit between Connecticut and Ireland, resulting in a very late and abbreviated response. We anticipate expanded information in 1991.

Dynix, Inc.

Dynix showed the beginnings of a new marketing philosophy in 1990. Although sales in its traditional client bases continued to be strong, Dynix made an increased effort to reach smaller customers. The terminal count charts in this article are revealing, but fully 43 percent of all the 171 systems sold by Dynix in 1990 contained eight or fewer terminals, and 65 percent of them contained 16 or fewer. While the act of selling this unprecedented number of systems is a stunning accomplishment, one must also consider the potential market growth area for libraries of this size. Not surprisingly, Dynix's stated goal for 1991 was a broad expansion into the smaller library market, especially as more libraries go to software-only purchases. In fact, 14 percent of 1990 procurements were software-only, compared to its cumulated total of 18 percent. Its product line, already supported by a diversity of hardware platforms, was enhanced by the Dynix Scholar system, designed to run on smaller 386- and 486-based workstations. The Scholar has been competitive in the K-12 market. Another interesting Dynix product is the Dynix Marquis system, which appeared at ALA Midwinter. Designed to drop into an existing LAN, albeit by adding a database file server and a considerable amount of RAM to each workstation, the Marquis product reflects an ever-growing trend toward more distributed computer networks, especially in special and corporate library operations. This product, along with the Dynix Scholar, will be an interesting pair to watch in 1991. Dynix also rapidly continues to grow worldwide, with new offices in Singapore, Taiwan, and Hong Kong.

Gateway Software Corporation

Gateway, based in Montana, is a newcomer to our vendor profiles. The company specializes in software-only sales to school districts, where the library automation software is usually a subsystem to the school district's administrative package. Its installations in 1990 grew from three sites to eight. Gateway's library product is based on the IBM AS/400 platform. Achievements in 1990 include the introduction of full Boolean keyword searching, subject heading searching, textbook management, and inventory control systems. Goals for 1991 are the development of a media booking module (an important component for school libraries) and authority control.

Gaylord Information Systems

Gaylord's GALAXY product had strong sales in 1990, jumping from five installations in 1989 to a total of 36 in 1990. The product (with modules for cataloging, circulation control, PAC, E-mail, report generation, authority control, reserve room, and ILL and bookmobile support) is based on the popular DEC MicroVAX Series of computers, operating under the proprietary—but ubiquitous—VMS operating system. The company's vice president, Charles Farley, told us at the beginning of 1990 that Gaylord would address the smaller library automation market. Its success seems to indicate the marketing potential for this area. Data conversion continues to be a major component of Gaylord's business. Some of its products, like the CD-ROM-based SuperCat cataloging system, are again designed primarily for the smaller library market, as many of these institutions are not members of a major bibliographic utility. Serials control modules are slated for development in 1991.

Geac Computer Corp. Ltd.

Geac continued many of the trends it began in 1989. Financial stability improved and earnings in 1990 were twice that posted in 1989. We suspect that most of these figures are attributable to Geac's UNIX/Pick-based Advance products, since sales of the Geac proprietary GLIS system continue to be weak in the United States (despite the introduction of the new GEAC 9302 computer system). Geac also appears to be stressing telecommunications in its new products, having developed several interfaces in the past year. One such product is the Local Information Module (LIM) for the GLIS system, displaying community information. Another is DataWay, an X.25 communication package allowing GLIS terminals simultaneous access into as many as 16 remote computer hosts. Like several other vendors, Geac has devised a microcomputer-based image-collection system interfaced to its primary computer, with access using OPAC indexes. Release 2.0 of the Geac Advance System debuted in 1990, containing a new acquisitions module supporting BISAC standards. Nineteen hundred ninety-one is Geac's 20th anniversary year, and libraries can expect special marketing tactics to continue to stress Geac's intersystem communications.

Information Dimensions

Information Dimensions is another software-only vendor that made large gains in the special library segment of the marketplace. Its 1990 installations number 25, with the United States and Europe as the company's biggest audience. Information

On Calculating Market Share: A Definition

In reviewing the results of the 1990 marketplace, readers should be aware of the following conventions used during the analysis. Because of the continually changing technology, some of the standards used in previous years have been altered, yielding considerable changes in the overall counts.

- When the author determined that vendors had counted libraries sharing a system as multiple installations, adjustments were made to vendor responses to determine individual installation sites; these sites were then counted in the tallies.

- Although the use of microcomputers by libraries for circulation, online catalogs, and for technical services activities is important, this article is focused on multiuser integrated library systems. Many of these smaller systems, although based on current microcomputer technology, also fall within the same integrated multiuser definition. Therefore, some of the more powerful microcomputer-based systems are now included in the analysis portion of the article.

- As in last year's article, certain vendor totals may look exaggerated or incorrect. Please note that the author adjusted the total installations reported based upon the number of systems installed and the number of systems "removed" as libraries grew into their second and third automated systems during 1990. Numbers should now reflect the current user base.

Dimensions is in the process of migrating its user base to new UNIX-based platforms for Sun, HP, and CDC computers. An acquisitions module was released in December. The coming year will bring continued efforts in migrating its user base to UNIX.

INLEX

INLEX had a year of steady growth in 1990, with an equal number of installations in the academic and public library sectors. Almost all of these systems were sold in the United States, proving that INLEX is keeping abreast of its established competitors. Although most of its installations are still medium-sized in terminal counts, the company has now installed a total of eight systems with terminal counts of 80 or better. INLEX, based on the durable HP 3000 Series hardware platform, completed development of its acquisitions module in 1990, as well as two sophisticated database customizer/report generator modules—the Editor and the Reporter. Also, its information and referral/local database modules were released in 1990. For 1991, INLEX plans to complete the development of a reserve room module and an interface to a CD-ROM jukebox.

Innovative

Innovative Interfaces had another stellar year in 1990. Revenues grew by a total of 66 percent to $20 million; 1989 revenues "only" grew by 50 percent. This makes the two-year growth of the company an astonishing 151 percent, moving it to fourth place in worldwide all-year installations, displacing DOBIS, and third in the U.S. all-year totals. Its 1990 U.S. performance of 43 installations was equally consistent, placing the company second to Dynix's 63 and just ahead of DRA's 41 system U.S. sales efforts. As mentioned above, Innovative is entering a joint venture with CLSI in 1991, adding its serials/acquisitions modules to CLSI's base product. Another interesting trend is the rise in the number of Innovative's 1990 software-only installations, which represent 25 percent of total sales. Innovative also installed its first system in Asia this year—at Hong Kong University of Science and Technology. Other 1990 milestones include support for Chinese/Japanese/Korean character sets, materials booking, and E-mail. Goals for 1991 include strengthening customer service, and a continuing visible presence in the marketplace.

NOTIS

NOTIS behaved characteristically in the 1990 marketplace. The company reports 15 installations last year, 14 of which (not surprisingly) were in the academic sector. Although 80 percent of these installations were software-only, reflecting the IBM platform common in college and university campuses in the United States, the drop from 100 percent remains significant. KeyNOTIS, a new turnkey product designed primarily for smaller libraries, was successfully installed at three sites last year—Messiah College (Pa.), Robert Morris College (Pa.), and Delaware State College. The company released a significant software upgrade in 1990, focused on the OPAC and circulation modules. Also completed in 1990 were additional upgrades to the Multiple Database Access System (MDAS), a module providing access to other online databases using the same search commands as the OPAC. NOTIS also enhanced its bibliographic utility interface software this past year to function with either OCLC's First System or Prism System, as well as downloading from CD-ROM-based MARC cataloging systems. For 1991, NOTIS plans location-based catalogs, useful for libraries, branches, or collections sharing a single NOTIS system. Other efforts include serials check-in enhancements, and NOTIS system-to-system links. Of special interest will be the marketplace progress of the KeyNOTIS system, and the spillover of its user-defined features to the classic NOTIS product.

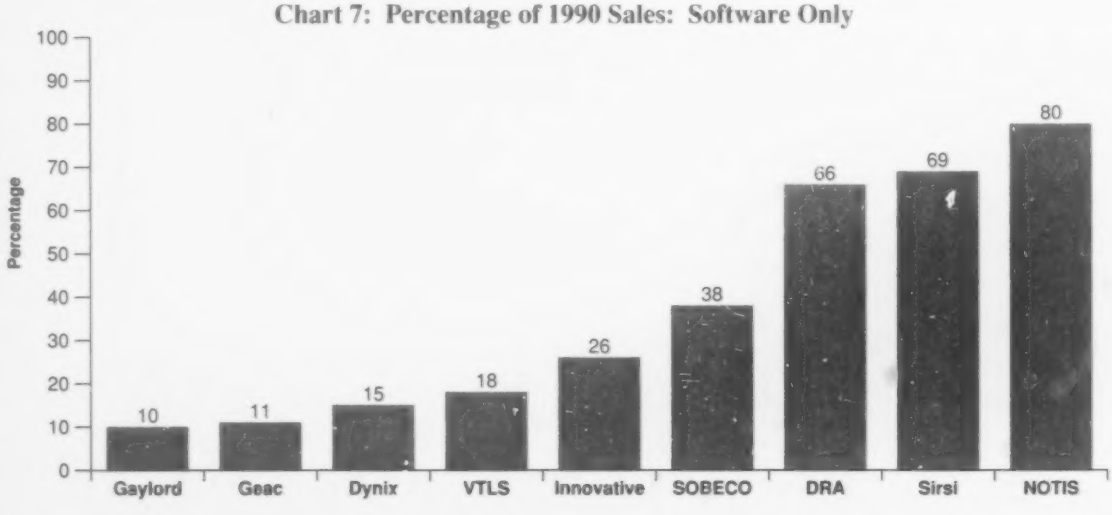
NSC

NSC is another software-only vendor highlighted for the first time this year. Based on the IBM AS/400 series computers, NSC increased its user base from 17 in 1989 to 20 in 1990. A full-featured system containing all of the usually encountered subsystems, in 1990 NSC added an interface to OCLC Prism, keyword searching and stop lists, and authority control processing. Plans for 1991 include enhancement of the serials/acquisition module and an electronic data interface for order/invoicing processing.

Sirsi

Although often and incorrectly considered a small-system vendor exclusively, Sirsi did not have a small year in 1990, with its user base growing by 76 percent, from 46 systems to 81. Sirsi has a wide spectrum of user types, more or less evenly distributed among academic, public, and special libraries, with slightly heavier emphasis in the public school sector. This was especially apparent in 1990, as 54 percent of its sales occurred here. A large volume of its sales (71 percent) were software-only, reflecting the company's strong commitment to the UNIX operating system and to the wide distribution of these economical platforms. In 1990, Sirsi completed an upgrade to its retrieval interface manager, which translates Sirsi search commands into online database commands for services like DIALOG and OCLC EPIC. Sirsi also announced new releases of its OPAC and serials control subsystems for 1990, and additional upgrades are in the works for 1991.

Chart 7: Percentage of 1990 Sales: Software Only



Figures include typical turnkey sale and joint venture sale vendors (where hardware manufacturer jointly participates in proposing the system)

Sobeco/multiLIS

multiLIS strengthened its commitment to the U.S. marketplace by opening its first branch office here in 1990. Multicore Library Services Inc. Several user groups were also established last year. Canada continues to be its biggest marketplace, where the vendor claims to have the largest installed user base for any library automated system. In 1990, multiLIS opened an office in Paris and sold eight systems in France. An interesting product compiled to run either on UNIX-based or DEC VAX VMS–based platforms, new serials and circulation modules are scheduled for release this summer, and a new PC-based version of multiLIS will also be released, promising identical functionality with existing multiLIS software. As the smaller library marketplace continues to heat to a boil, this product may be one to watch.

UNISYS

UNISYS PALS system is generally regarded as serving large computer terminal networks. Although 12 of its 33 users fall into the 176-plus terminal count (with one listed as 2200-plus), fully a dozen systems have 32 or fewer teminals. The PALS product saw five installations reported for 1990, and four of them had 32 or fewer terminals. During 1990, the product saw a new software release and a new authority control module. Goals for 1991 include external database searching, enhanced OPAC capabilities, currency conversion, and public library–specific enhancements.

VTLS

Once again, VTLS had a steady year in 1990, increasing from 159 to 187 users. Europe and the United States continue to be its largest customers. VTLS operates on the HP Series 3000 and the IBM ES/9000 platforms, the latter providing some interest for those institutions that run Big Blue shops. Micro-VTLS, a PC-based software package, accounted for eight systems in 1990. Product announcements for 1990 were rather sexy: a multimedia OPAC with the capability to handle music, voice, imaging, and full text; an OPAC/CD-ROM interface that would allow users to access CD databases from their terminals; and an artificial intelligence interface to the OPAC, with a version for IBM and Macintosh workstations. And, for a touch of glasnost, VTLS has announced completion of the customization for the Lenin State Library in Moscow, complete with a Cyrillic character set. More multimedia developments seem to be the VTLS focus for 1991.

Source List

Advanced Libraries & Information, Inc.
(see Geac)

Ameritech Information Systems
4950 Blazer Memorial Pkwy.
Dublin, OH 43017-3384
800-848-5878

Brodart Library Automation Div.
500 Arch St.
Williamsport, PA 17705
800-233-8467
717-326-2461

CARL Systems Inc.
777 Grant St., Suite 304
Denver, CO 80203
303-861-5319
FAX 303-830-0103

Carlyle Systems, Inc.
2000 Alameda de las Pulgas
San Mateo, CA 94403
415-345-2500
FAX 415-654-0464

CLSI, Inc.
320 Nevada St.
Newtonville, MA 02160
800-365-0085
617-965-6310
FAX 617-969-1928

Central Federal Svcs., Inc. (DataLib)
11400 Commerce Park Dr.
Reston, VA 22091
800-843-4850
FAX 703-758-7306

CoBIT
3380 Tremont Rd.
Columbus, OH 43221-2112
800-337-1222
614-538-1222

Columbia Computing Svcs.
8101 E. Prentice Ave.
Suite 700
Englewood, CO 80111-2911
800-663-0544
FAX 303-773-9630

Computer Management & Development Services (CMDS)
1661 Virginia Ave.
PO Box 1184
Harrisonburg, VA 22801
800-999-2637
FAX 703-432-5275

Comstow Info Svcs.
249 Ayer Rd., PO Box 277
Harvard, MA 01451-0277
508-772-2001

Data Research Assocs., Inc.
1276 N. Warson Rd.
PO Box 8495
St. Louis, MO 63132-1806
U.S. 800-325-0888
Canada 800-331-3515
FAX 314-994-8927

Data Trek, Inc.
5838 Edison Place
Carlsbad, CA 92008
800-876-5484
619-431-8400
FAX 619-431-8448

Dynix, Inc.
151 E. 1700 S.
Provo, UT 84606
800-288-8020
801-375-2770
FAX 801-373-1889

EBSCO Subscription Svcs.
PO Box 1943
Birmingham, AL 35201
205-991-6600

F.W. Faxon Company
15 Southwest Park
Westwood, MA 02090
617-329-3350

Follett Software Company
809 N. Front St.
McHenry, IL 60050-5589
800-323-3397
815-344-8700
FAX 815-344-8774

Gateway Software Corp.
1645 Ave. D
Billings, MT 59102
406-256-9716
800-359-3641

Gaylord Information Systems
PO Box 4901
Syracuse, NY 13221-4901
800-962-9580
315-457-5070
FAX 315-457-8387

Geac Computers, Inc.
70 Valleywood Dr.
Markham, Ontario
Canada L3R 4T5
416-475-7733
FAX 416-475-0525

General Research Corp.
5383 Hollister Ave.
PO Box 6770
Santa Barbara, CA 96130
800-235-6788

Georgetown University Medical Center
Dahlgren Memorial Library
3900 Reservoir Rd. NW
Washington, DC 20007
202-687-1035
FAX 202-687-1862

IBM (DOBIS) Library Marketing
472 Wheelers Farms Rd.
Mail Stop 33
Milford, CT 06460
203-783-7350
FAX 203-788-7636

IME
990 Washington St.
Dedham, MA 02026-6790
617-320-0303
FAX 617-302-0793

Information Access Corp.
11 Davis Dr.
Belmont, CA 94002
415-591-2333

Information Dimensions
655 Metro Place S.,
Suite 500
Dublin, OH 43017-1396
800-DATA-MGT
614-761-7446
FAX 614-761-7290

INLEX, Inc.
One Lower Ragsdale Dr.
Bldg. #1, Suite 100
Monterey, CA 93940
PO Box 1349
Monterey, CA 93940
800-553-1202
408-646-8600
FAX 408-646-0651

Innovative Interfaces
2344 Sixth St.
Berkeley, CA 94710
800-444-2344
415-644-3600
FAX 415-644-3650

JES Library Automation Consulting Svcs., Inc.
104-221 Blue Mountain St.
Coquitlam, B.C.
Canada V3K 4H3
604-939-6775

Library Corp. of America
(The Intelligent Catalog)
Research Park
Inwood, WV 25428
800-624-0559
304-229-0100
FAX 304-229-0295

MultiLIS Corporation
505 Rene-Levesque Blvd. W.
Montreal, Quebec
Canada H2Z 1Y7
514-878-9090
FAX 514-875-2673

NSC, Inc.
428 W. Ryan St.
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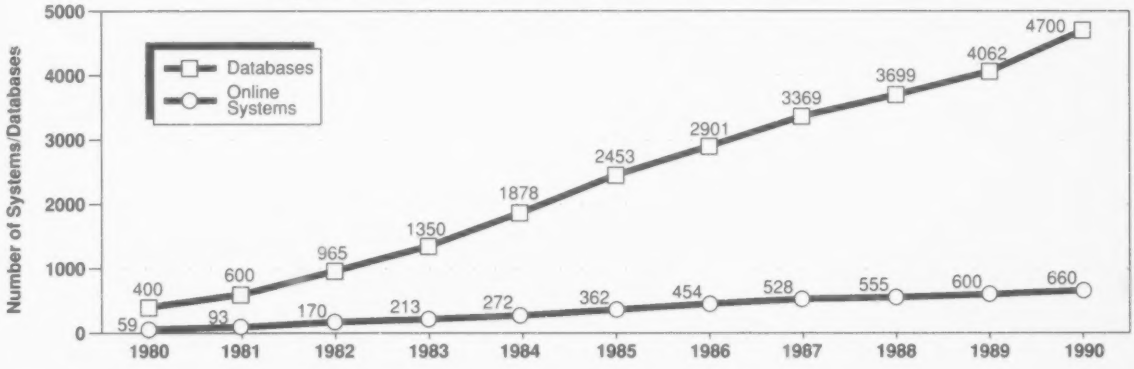
ONLINE DATABASES

BY CAROL TENOPIR

The Most Popular Databases

HOW MANY different databases do you search in a month? In a year? Do you now search many more and a wider variety of databases than you did ten years ago? At the rate online databases have proliferated in the last two decades, it is no wonder that we should all be searching a much greater variety than we used to. Where we once had a choice of three databases on a topic, we may now have a choice of 30 or more. Yet a small number of databases still dominate the use in libraries and information centers.

Figure 1: Growth in Online Services and Databases



Source: Cuadra. Directory of Online Databases, Cuadra/Elsevier, quarterly

CHARTS BY ANNABELLE CARTER

Sources for information

The growth in the number of databases, companies that produce databases, and online services is tracked mainly by two long-time leaders in the field. Carlos Cuadra gathers much of his data for the quarterly *Directory of Online Databases* and semiannual *Directory of Portable Databases*, joint publishing ventures by Cuadra Associates and Elsevier. Martha E. Williams of the University of Illinois summarizes some of her data each year in the preface to *Computer-Readable Databases: A Directory and Data Sourcebook*, now published by Gale Research, and in the introduction to the *Proceedings of the National Online Meeting*, published by Learned Information. The most comprehensive source on database use is Williams's *Information Market Indicators* (*IMI*), a quarterly publication aimed at database producers/vendors.

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Growth of & most-searched databases

If you feel overwhelmed by the thought of all your choices in databases, a glance through these publications will show you why. In 1975 (when I started searching), Williams reports there were only 300 databases commercially available through about 100 vendors. By 1990, she found over 5600 computer-readable databases available from over 850 vendors. As seen in Figure 1, Cuadra counts similar growth numbers for online databases from 1980. For example, DIALOG has grown from just a handful of databases in 1975 to over 400 today.

With so many databases/online systems to choose from it is not surprising that the number of searches has increased dramatically. Williams reports a more than 30-fold increase in searches on word-oriented databases in the U.S. library/information center market, as shown in Figure 2.

The most popular databases cut across several online systems, types of database producer, and subjects. *IMI* reports that corporate libraries and information brokers do the most searching. Overall figures, excluding law schools, law libraries, and legal firms (which are high-volume searchers), show the databases searched the most in 1990 were, in order, MEDLINE, NEXIS, ERIC, World Patents, Predicasts files, CA (Chemical Abstracts) File, CA Search, and Financial Information Service.

High-volume corporate searchers skew these results somewhat. When academic libraries are considered alone, the picture changes a bit. The top databases in academic libraries in 1990, almost all bibliographic, were MEDLINE; ERIC; PsycInfo (online version of *Psychological Abstracts*); BIOSIS; Health Planning and Administration; CA File (Chemical Abstracts file with abstracts, available on STN International; Dissertation Abstracts; CA Search (Chemical Abstracts file without abstracts, available on several online systems); Inspec; CAB, Social Science Citation Index, PDQ—Physician Data Query, Catline, and ABI/INFORM in a virtual tie; National Newspaper Index; and Magazine Index. Public libraries do a relatively small percentage of the overall online searching, but tend to search these same databases. ERIC, MEDLINE, and Magazine Index get

high use in public libraries. A similar picture was found by Jamshid Beheshti and A. Tabah of McGill University in Montreal. They analyzed a random sample of libraries listed in the Gale *Online Databases Search Service Directory* to find which online systems and databases were most used by libraries and how these online services are being funded in the library. Fifty-one percent of their sample were academic libraries, followed by government libraries (21%), corporate libraries (21%) and public libraries (7%). Although the analysis was reported at the 1990 meeting of the American Society for Information Science (ASIS), the data were collected by Gale in 1987, so in most cases it represents pre-CD-ROM information.

Beheshti and Tabah found that ten databases comprise 60% of all the databases used. Within the remaining 40% over 40 databases were mentioned. The ten most used databases in U.S. and Canadian libraries according to their calculations are ERIC; MEDLINE; PsycInfo; BIOSIS; ABI/INFORM; Compendex (Computerized Engineering Index); CA Search; Science Citation Index; and Health Planning and Administration.

Explaining database popularity

Why are some databases so popular? The first reason is *longevity*. Most of the databases that appear in several lists have been online for many years, e.g., ERIC, NTIS, CA Search, and MEDLINE were among the very first databases online. We are used to searching them, and their producers and vendors have years of experience to ensure their consistency and quality. The second reason is *familiarity*. Familiarity ties in with longevity, but goes beyond it. Most of these databases have print equivalents, CD-ROM versions, and/or microform versions. Librarians may use them in other forms and feel familiar with the content and idiosyncrasies of the product. They are almost all well-established bibliographic sources, popular in a multitude of formats in libraries for years.

Another reason is *availability*. Most of the popular titles are available on multiple online hosts. Some, like MEDLINE, NTIS, and ABI/INFORM, are available on over ten online systems each. Most are available on several major online hosts. These databases carry the weight of *authority*. The database may be viewed as an authoritative or comprehensive source in a field, such as ERIC in education, CA Search in Chemistry, MEDLINE in medicine, and BIOSIS in biology. Many offer one-stop shopping for a topic in a broad subject field, and some are megafiles with hundreds of thousands or millions of records.

Another common denominator is structural *quality*. Practically all of the most popular databases in libraries are bibliographic with controlled vocabulary descriptors. Many have other value-added fields such as classification codes. Thesauri and other database search aids are available for most. Professional searchers feel comfortable formulating and running searches when they have a variety of strategy options and can count on structural consistency. Many of these databases offer *affordability*: MEDLINE, ERIC, PsycInfo, and Health Planning and Administration are among the lowest-priced databases on major online systems. STN International offers substantial discounts for academic users using STN to access the CA files. For 13 of the 16 most popular databases that are on DIALOG, the average price per hour is approximately $80. Still, affordability is clearly not a single deciding factor since INSPEC, Social SciSearch, and ABI/INFORM are all over $100 per hour on DIALOG.

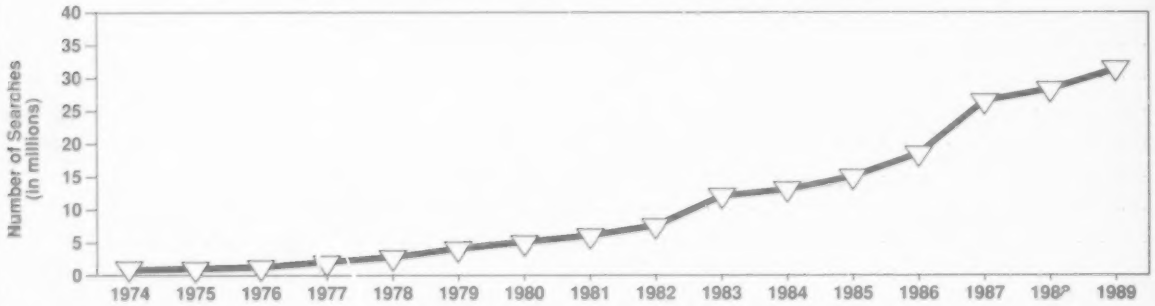
Popular CD-ROM databases

Academic libraries use their online search statistics to help make purchasing decisions for CD-ROM. It is not surprising that many of the same databases are popular on CD-ROM. Among OCLC libraries, the top ten CD-ROM databases as reported in the March 1990 issue of *Laserdisk Professional* are, in order, InfoTrac (some InfoTrac versions are CD equivalents to Magazine Index); ERIC; PsycLIT; Books in Print Plus; Academic Index; MLA Index; ABI/INFORM; DISCLOSURE; Dissertation Abstracts; and Social Science Index.

In a July 1989 report, Williams summarized statistics on CD-ROM use. She found the most popular CD-ROM databases in a broader library and information center market to be ERIC, Books in Print Plus, MEDLINE, DISCLOSURE, InfoTrac, and PsycLIT. The top four CD-ROM vendors by expenditure are Information Access Company (InfoTrac), SilverPlatter, Lotus Corporation, and Wilson. Although fourth in revenues, Wilson is first in number of databases sold to libraries. It offers a large number of relatively low-priced CD-ROM databases.

The number of online and CD-ROM databases will continue to increase at an impressive rate. Most of our old favorites are bound to remain and will continue to be the backbone of our searching operations. Online and CD-ROM gives us the opportunity to meet new online faces as well.

Figure 2: Growth in Online Services of Databases



Source: Williams, Computer – Readable Databases, Gale 1991

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LIBRARY JOURNAL is indexed in *Educational Index, Library Literature, Library & Information Science Abstracts,* and *Magazine Index.* SUBSCRIPTIONS: USA: 1 year $74; 2 years, $126; 3 years, $178. Canada: 1 year $99, 2 years $168, 3 years $238. All other countries (air delivery): 1 year $130, 2 years $221, 3 years $312. (Remit in US funds only.) POSTMASTER: Please send address changes to *Library Journal,* P.O. Box 1977, Marion, OH 43305-1977.

Editorial Offices: Library Journal, 249 W. 17th St., New York, NY 10011; 212-463-6819; FAX 212-242-6987.
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